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The 1979 World Administrative Radio Conference: The ITU in a Changing World

Introduction

On September 24, 1979, the International Telecommunication Union (ITU) will convene a general World Administrative Radio Conference (WARC). Nearly 1500 delegates from 154 countries will refashion the international regulatory arrangements for radiocommunication by amending the ITU Radio Regulations and adopting numerous resolutions and recommendations.[1] These actions may have a substantial effect upon domestic regulation of radio, administrative features of the ITU, and international legal norms.

The Conference has special significance because it is the first ITU general administrative conference to be numerically controlled by less developed countries (LDCs). In addition, it is occurring at a time when cries for new world economic and information "orders" are being heard in a number of other international forums, including the UN Educational, Scientific and Cultural Organization (UNESCO), the UN Conference on Trade and Development (UNCTAD), the UN Committee on the Peaceful Uses of Outer Space (UNCOPUOS), and the UN General Assembly. Given the relatively broad jurisdiction of the Conference, a certain apprehension exists among

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[1] *See* Agenda of the Conference: Recommendations Adopted by the Administrative Council, Doc. 1, World Administrative Radio Conference (Geneva, 1979), September 29, 1978. [Reproduced as Appendix B to this paper.]

many of the older, developed countries regarding the manner in which these new "orders" will be expressed in the ITU Institutional setting.[2]

The intent of this article is to provide some basic information regarding the present international arrangements for cooperation in telecommunication and the various factors at work which might change those arrangements, and to examine the significant issues associated with the ITU's 1979 WARC and explore the effects of various possible actions. The impact of the Proposals of the United States is also discussed.[3]

Background

The ITU's Basic Institutional Features

The ITU is the major international institution responsible for achieving global agreement on the use of telecommunication. It is a specialized agency of the United Nations headquartered in Geneva, Switzerland. The Union's foundations date back to the establishment of the International Telegraph Union in 1865. The ITU was created when the Telegraph Union and the Radiotelegraph Union (subsequently established in 1906) were merged in 1932.[4] Its purposes are to maintain and extend international cooperation in the use of telecommunications of all kinds, and to promote the development of technical facilities and the efficiency of telecommunication services.[5] It does this in a variety of ways.

The 1973 ITU Convention (the equivalent of a domestic constitution) sets forth the fundamental principles of the organization. Two tiers of international controls have been adopted: the Telegraph, Telephone, Radio and Additional Radio Regulations (the rough equivalent of domestic statutory law) set forth mandatory controls of telecommunication, while the Consultative Committee Recommendations (perhaps intermediate in effect between domestic agency rules and industry standards) set forth non-binding controls which tend to supplement the Regulations.[6]

The Union records in a Master Register frequency and space satellite position assignments made by countries to their radio stations. This process puts other nations on notice in order that harmful interference to the existing, recorded stations' communications may be avoided. The Union also

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[2]A number of current articles on the 1979 WARC, from a variety of perspectives, are listed in Appendix A.

[3]The proposals of the United States to the Conference were forwarded to the ITU on January 30, 1979. They reflect, in substance, those recommended by the Federal Communications Commission (FCC) and the National Telecommunication and Information Administration (NTIA), following an extensive administrative proceeding over a period of four years. *See Report and Order,* 70 F.C.C. 2d 1193 (1978).

[4]G. CODDING, THE INTERNATIONAL TELECOMMUNICATION UNION 108-393 (1952).

[5]Telecommunication Convention, *done* Oct. 25, 1973, art. 4, 28 U.S.T. 1729, T.I.A.S. No. 8572 [hereinafter cited as the 1973 ITU Convention].

[6]However, recent attempts have been made to make the ITU's operation more efficient and timely by shifting the controls from the Regulations to the CCI Recommendations, and

sponsors many programs of technical assistance, especially to the LDCs.

The plenary organs of the ITU consist of the Plenipotentiary Conference, which has supreme authority and meets irregularly; the Administrative Conference, which has varying authority over the Regulations (as determined in advance by the agenda) and meets irregularly; the International Radio Consultative Committee (CCIR); and the International Telephone and Telegraph Consultative Committee (CCITT). The Consultative Committees have jurisdiction over their own Recommendations and operate through numerous study groups, as well as a Plenary Assembly. In all of these plenary bodies, each member country—of which there are currently 154—participates on an equal basis.

The ITU also functions through several administrative bodies. The actions of the International Frequency Registration Board, in administering the Master Register and making some limited findings of fact, are of some legal significance. The Secretary General and the Administrative Council, which meets annually and consists of thirty-six member country representatives, provide for the day-to-day operation of the Union.

The Evolution of Institutional Controls

The ITU's regulatory features were fashioned in the 1920s and refined at successive conferences in the three subsequent decades.

After the First World War demonstrated the usefulness of radio, and broadcasting emerged in the early 1920s, wide-ranging discussions were held in a number of forums.[7] At that time, no comprehensive international agreements existed in the field of radio communication, and the increasing interference among broadcasters suggested that the time was ripe for the establishment of controls. At first, an institution was envisioned which would possess substantial juridical powers to allot radio channels to nations. However, as the postwar idealism waned, and hostilities among European countries increased, the participants in international forums attempted to find a common ground upon which agreement could be reached.

The means chosen were limited and basically technical. At the 1927 Radio Conference, the available radio frequency spectrum was divided into bands which were allocated to several defined classes of service, for example, broadcasting, maritime mobile (ship), fixed (point-to-point), etc. This scheme was set forth as a Table of Allocations. The allotment of individual radio channels to stations was to be done by nations which would subsequently secure a right of non-interference to the station by informing the International Bureau of the ITU's predecessor organization. This latter method is often referred to as the "first-come, first-served" principle. This

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enhancing the effect of the Recommendations. This process tends to alter the characterization of the Recommendations as non-binding, discussed further below.

[7] G. Codding, *supra* note 4, at 108-129. *See also* the references cited in Rutkowski, *The Regulatory Regime of the International Telecommunication Union—New Directions*, _____ TELECOMMUNICATION J. _____, [1979].

basic scheme remains in effect today. In addition to preventing harmful interference to communication, it assures certain common channels and standards of transmission for vessels of international transportation, and sufficient standardization to allow international global markets for telecommunication equipment. This approach has the benefits of affording necessary controls for international commerce and comity, while maximizing national sovereignty. Of course, the entire scheme rested upon a premise that disputes among nations regarding access to radio channels would be infrequent, and that any disputes which did arise could be settled by an agreement among the affected parties.

Under this regime, the plenary bodies met periodically to make adjustments to the Table, define new classes of "service," and impose appropriate technical constraints upon services. The administrative bodies enjoyed no substantive powers. This was effectively achieved by specifying their operating procedures in considerable detail in the Regulations.

This approach appears to have worked reasonably well until the 1940s. At that time, some countries began to register many assignments which were known to be fictitious. At the 1947 Atlantic City Radio Conferences, an attempt was made to terminate the rights acquired by previous registration, develop an equitable plan for allotment of channels to countries, and have the plan maintained by an International Frequency Registration Board (IFRB) with substantial administrative powers. However, history repeated itself and a consensus for this arrangement never fully developed. Nonetheless, some of the fruits of the allotment process were implemented, and the IFRB survived—albeit with substantially diminished powers.

Until very recently, the features established by the 1927 and 1947 Conferences remained the sole mode of international regulatory cooperation in radio communication within the ITU. During the last decade several significant developments have occurred which suggest that a substantial evolution in the institutional features of the ITU may now be under way. Indeed, certain new features which could constitute alternative approaches have been appearing at recent conferences.

It is this potential for additional change along uncertain lines which makes the 1979 WARC particularly interesting. However, this same potential for dramatic change existed at the Plenipotentiary Conference in 1973, and no such changes materialized. The same may well be true for the 1979 Conference, where essentially minor revisions to the technical regulations may be felt to be more important than any major, disruptive changes to the existing basis for international agreement. As the Secretary General of the ITU remarked:

> [T]he spirit which inspires [conference] discussions naturally inclines delegations to seek a compromise which, so far as possible, will take account of the requirements and interests of all parties. . . . This approach . . . is due to the fact that no one can afford too radical a solution which, while it might fully satisfy one

party, could obviously harm the interests of the others. For in this case the latter would have no option but to declare the proposed solution unacceptable and impossible for it to implement.[8]

The Seeds of Change

Emergence of New Sovereign States

During the last thirty years, the change in membership of international organizations has been dramatic. For example, prior to 1950, the ITU was controlled by a relatively small number of developed countries which had common interests in radio communication. In 1947 ITU membership numbered seventy-eight countries. By 1965 it had grown to 125, and today stands at 154. This growth is due almost entirely to the birth of new, less developed countries from the territorial remnants of former colonial powers. They impart an entirely new character to all international organizations.

This new character is often expressed by a desire to establish new economic[9] and information "orders,"[10] as well as by the use of such concepts as the "common heritage of mankind."[11]

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[8]Mili, *International Jurisdiction in Telecommunication Affairs,* 40 Telecommunication J. 124 (1973).

[9]The movement by LDCs for a New International Economic Order "stems from the Sixth and Seventh Special Sessions of the United Nations General Assembly. Following these sessions, there has been a shift in third world political strategy [from] . . . 'status' objectives . . . to finding ways to improving the welfare of poor countries." Read, *Coming: A Law of Communications Conference,* 11 Int'l Law. 713, 718 (1977). Read also attributes this statement to the ITU Secretary General: "[t]he revision of the existing table of frequency allocations will be a positive contribution by the ITU to the introduction of a new international economic order." *Id.* at 718.

[10]The New World Information Order is an emerging concept which encompasses several interrelated technical, social, and political considerations. The most prominent include, *inter alia:*

a. the necessity to diminish the dependence on the developing world in the field of information and communication;
b. the benefits that might accrue to the peoples of the developed countries, and of the world, from an expanded opportunity to hear the authentic voice of differing societies and cultures in a dialogue made progressively more equal.

Interim Report of the International Commission for the Study of Communications Problems, (UNESCO 20th General Conference, Paris, Sept. 25, 1978), U.N. Doc. 20 C/94.

The Director for International Communications Policy at the United States International Communication Agency (ICA) makes the interesting observation that the call for a New World Information Order " . . . assume[s] by its phrasing that we presently have an order. . . . I would submit that we do not . . . and that recognition of this fact can make a substantial difference to our thinking as we consider our aims and objectives. . . . " Homet, *Goals and Contradictions in a World Information Order,* I.C.A., Dec. 1978.

[11]The "common heritage of mankind" principle has been applied to satellite radiocommunication resources, usually in the UNCOPUOS rather than the ITU. In this context, the principle would suggest that such resources are beyond the limits of national jurisdiction, and that the attendant resources must be used for the common benefit of all peoples. *See* Christol, *The Legal Common Heritage of Mankind: Capturing an Illusive Concept and Applying it to World Needs,* Proceedings of the Eighteenth Colloquium on the Law of Outer Space 42 (International Institute of Space Law, Oct. 1976).

The extent of the effects which the LDCs have had on international organizations has depended on:

1. the degree to which political questions could be introduced at plenary meetings;
2. the extent to which mechanisms of the institution could be used to achieve a New International Economic Order or New World Information Order; and, most significantly,
3. the voting principles of the organization.

The equal representation voting principles of the ITU and UNESCO have significantly affected those organizations. On the other hand, the international monetary organizations, such as the World Bank, which have a voting scheme based on the member's stake in the institution, have been spared such subtantial impacts. However, international telecommunication requires substantial cooperation among nations for the resource to be useful to each individual nation. Thus the fundamental laws of radio technology and the kinds of persons attracted to manage the use of the resource (that is, technologists) tend to be a moderating force within the ITU.

Nonetheless, telecommunication has been increasingly viewed as a limited natural resource by the LDCs. Hence, they assert that an international organization such as the ITU has a responsibility to assure that the resource is equitably distributed among all nations, with preferential treatment for less developed countries.

In the ITU, the handwriting on the wall began to appear as early as the 1959 General Administrative Radio Conference when a Pakistani delegate noted that the "first-come, first-served" method of allocating station rights should be radically altered by giving all listed frequency assignments a common date at each administrative radio conference.[12] The idea was rejected with little discussion. From that time onward, a priori plans[13] appeared to become the preferred tool for altering the existing institutional regime.

At the 1973 Plenipotentiary Conference, the People's Republic of China, claiming to speak for many LDCs, indicated that ". . . the small- and medium-sized countries should unite to oppose superpower monopoly of radio resources and change this irrational state of affairs."[14] At the next two administrative radio conferences, a priori plans were adopted for maritime and broadcasting satellite services.

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[12]D. LEIVE, INTERNATIONAL TELECOMMUNICATIONS AND INTERNATIONAL LAW: THE REGULATION OF THE RADIO SPECTRUM 69 n. 82 (1970).

[13]The a priori plan approach relies upon specialized administrative conferences to subdivide and allot radio channels or satellite orbit positions to countries in advance of present need or capacity to use them.

[14]Statement of the Delegate of China, Summary Record of the Second Plenary Meeting, Doc. 99, Annex 6 Plenipotentiary Conference of the International Telecommunications Union, Malaga-Torremolinos, Spain (Sept. 14-Oct. 25, 1973).

In 1974, at the second maritime administrative radio conference since 1959, the establishment of the new maritime radio plan provided an opportunity for the LDCs to express their desire to substantially change the manner in which rights to the use of radio channels were acquired.

> A principal theme at the Conference was "equal rights," meaning equal rights for old and new users of the radio spectrum. The procedure adopted by the Conference, under which future allotments for coast stations are to enjoy the same status as existing ones, abolished the existing system which affords seniority to allotments/assignments on the basis of a date associated with initial frequency use [that is, the "first-come, first-served" principle].[15]

Ten countries expressed their concern regarding this turn of events in their final protocols to the Final Acts of the Conference. The United States entered a reservation with respect to the plan. However, this is not an uncommon practice when ITU provisions are adopted. Indeed, the United States has regularly entered a reservation with respect to the provisions of the Telephone and Additional Radio Regulations since those regulations were first adopted. (The allotments made at the Conference are presented in Appendix C to this paper, and discussed more fully below.)

The desire of the LDCs to effect a new, more equitable scheme took concrete form again at the 1977 Broadcasting Satellite Conference. The phrase "equal rights" was replaced by "fair share," and the sentiments of many nations were expressed by the delegate from India, who stated that: ". . . his Administration strongly supported the adoption of an a priori Plan for satellite broadcasting which would ensure for the future a fair share of the orbit and spectrum for those countries not yet in a position to commence Broadcasting-Satellite Services."[16]

At the 1977 Broadcasting-Satellite Conference, however, it was not so much a matter of allocating resources which motivated the preponderance of nations to adopt a plan, as it was the desire to control the ingress of broadcasting from a foreign country. Efforts in other forums such as the UNCOPUOS had failed to produce a consensus resolution regarding the principle of prior consent for one state to broadcast into the territory of another, and generally ". . . bedevil[ed] . . . statesmen, diplomats, lawyers and technical experts . . . for more than a decade."[17] The very nature of the a priori plans adopted by the 1977 Broadcasting-Satellite Conference preclude the undesired state action; allotments to broadcast to a geographical area were granted only to the nation having legal jurisdiction over that area.

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[15] *Report of the United States Delegation*, U.S. DEPT. OF STATE, Office of Telecommunications, TD Serial No. 50, 28, note (1974).

[16] *Second Meeting of Committee 5*, Minutes, Doc. No. 137 of the 1977 Broadcasting-Satellite Administrative Radio Conference, 6 (Jan. 24, 1977).

[17] Poulantzas, *Direct Satellite Telecommunications: A Test for Human Rights Attitudes*, PROCEEDINGS OF THE SEVENTEENTH COLLOQUIUM ON THE LAW OF OUTER SPACE 157 (International Institute of Space Law, Oct. 1974).

The allotments made at the Conference are presented in Appendix D to this paper.

Since the Broadcasting-Satellite Conference in early 1977, there have been no further developments within the ITU toward implementing the new "orders." However, the pace has picked up in other forums. In the fall of 1978, considerable work was accomplished under the auspices of the UN Committee on Trade and Development toward effecting a Code of Conduct on the Transfer of Technology. In November, the 146 member nations of UNESCO adopted by acclamation a Declaration on the Contributions of the Mass Media which, *inter alia,* authorizes the Director-General of UNESCO:

> . . . to intensify the encouragement of communications development . . . to lead to the provision to developing countries of technological and other means for promoting a free flow and a wider and better balanced exchange of information of all kinds . . . [including] necessary steps to foster . . . institutional arrangements and for this purpose to seek the partnership of other appropriate international bodies.[18]

This kind of addition to international legal norms has obvious implications for the ITU, most notably in the area of international broadcasting.

The uncertainties surrounding the outcome of the 1979 WARC are substantial. It is possible that the Conference might be a purely technical one concerned with adjustments to the ITU's existing Radio Regulations. On the other hand, it is one of many conferences occurring during 1979 at which substantial attempts to further implement the new economic and information orders can be expected.

As a kind of postscript to these new developments associated with the activities of the LDCs, there exists a curious tangent which flies in the face of the common heritage of mankind principle, but is consistent, to some extent, with international norms dealing with the right of peoples to control the use of their natural resources.[19]

Many of the equatorial countries met in December 1976 to proclaim and defend on behalf of their peoples the "existence of their sovereignty" over those segments of the geostationary orbit which correspond to their land, sea and island territory.[20] In the opinion of the signatory states, the geostationary orbit ". . . must not be considered part of outer space . . ." because its existence ". . . depends exclusively on its relation to gravitational phenomena caused by the Earth."[21] This statement is commonly referred to as the 1976 Bogota Declaration.

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[18]Amendment to the UNESCO Draft Programme and Budget for 1979-1980, (UNESCO 20th General Conference, Paris, Nov. 22, 1978), U.N. Doc. 20 C/5.

[19]*See,* e.g., International Covenant on Economic, Social, and Cultural Rights, art. 1, *adopted by* G.A. Res. 2200, 21 GAOR, Supp. (no. 16) 49, U.N. Doc. A/6316 (1966).

[20]*See,* Declaration of the Equatorial States signed in Bogota, Colombia on December 3, 1976, paragraph 1, ITU 1977 Broadcasting Satellite Doc. No. 81, Annex 4.

[21]*Id.* paragraph 5.

It is apparent that the acceptance of this assertion of jurisdiction depends on the boundary of "outer space." That is, if the geostationary orbit is in outer space, it is not subject to national appropriation under Article II of the 1967 Outer Space Treaty. The entire matter is a subject of continuing controversy within the Legal Subcommittee of the UNCOPUOS.[22] It is also relevant within ITU conferences dealing with international arrangements for use of the geostationary orbit for radio communication. However, such conferences have always held the matter outside their competence, which has resulted in the inclusion of a reservation by the equatorial countries in the final acts of the conferences.

Growth of a Cumbersome Administrative System

When the ITU's present institutional scheme was devised in 1927, it was a fairly simple and straightforward system. The entire Convention and Regulations were set forth on seventy-one printed pages. These provisions had to be considered among a few dozen countries which possessed approximately the same level of expertise and a consensus as to the purpose of international cooperation in telecommunication. The emphasis was on individual state sovereignty, maximum domestic flexibility, and cooperation with other sovereigns to the extent it was necessary to avoid harmful interference or accommodate the carriers of international commerce. Each nation participated on an equal basis in all matters.

The current ITU Convention and Radio Regulations cover thousands of pages. Part of this expansion is due to the increased complexities of radio use, and to the inevitable tendency of the institution to devise ever more detailed provisions. All of this can be amended only during an occasional ten-week period during which 154 nations must agree on each provision at a general administrative radio conference. The body of the material is so vast and administratively complex, the number of countries so large, that the result is more conferences that accomplish less. Substantive issues tend to become lost in a vast forest of details.

In addition, "[d]espite the prolixity and detail of the Radio Regulations, they do not provide clear rules defining mutual rights and obligations of the majority of international communications stations in the most common situations."[23] This inflexibility, by essentially depriving ITU administrative organs of the freedom to adopt their own procedures, coupled with the lack of clarity in the Regulations, leads to an inevitable loss in administrative effectiveness.

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[22]Galloway, The Current Status of the Controversy Over the Geostationary Orbit (Oct. 1978) (paper presented at the 21st Colloquium on the Law of Outer Space, International Institute of Space Law). There is a substantial consensus within the Committee that the geostationary orbit is clearly in outer space and not subject to claims of sovereignty by nations. *Id.* at 7.

[23]D. Leive, *supra* note 12, at 301.

The great mass of regulations increasingly alienate the LDCs who perceive them as having no substantial relevance to their needs.[24] Most of the proposals of the developed countries have dealt with their own needs rather than world communication needs. There is no one to speak for the interests of the developing countries but themselves, and they generally lack the manpower and the expertise to do so. In this atmosphere, most of the new ITU member states, now constituting a majority, purposely do not adhere to the ITU's original subject matter limitations. Precious hours of conference time are spent on purely political matters or in generalized denunciations of the existing order. The developed nations, perceiving the tendencies of the new majority, refrain from exploring substantive options for change.

However, some changes have begun to be made, chiefly with respect to the Telegraph and Telephone Regulations. At the 1973 Telegraph and Telephone Administrative Conference, substantial portions of the Regulations were transferred to the CCITT Recommendations, with the resultant simplification of the Regulations. The ITU Secretary General, in applauding this trend, noted that "[e]xperience has shown that quite a number of the provisions of the . . . Regulations might well be published in this form without detracting from their force as international regulations."[25]

Development of New Technology

During the last decade, telecommunication and digital technologies have merged to produce several entirely new breeds of dynamic radiocommunication systems. The promise of these systems is great. They may rapidly become the dominant means of telecommunication in the future. Unfortunately, these systems are somewhat incompatible with the concepts of "service" as well as other features built into the current ITU regulatory scheme. Unless the Regulations are made more flexible, substantial difficulties may be encountered in accommodating these new technologies.[26]

Some of these technological developments are now beginning to affect satellite communication regulations,[27] and can be expected to eventually affect all higher frequency communications. For example, the only feasible manner by which the domestic satellite communication needs of smaller

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[24]*See generally* Codding, *The United States and the ITU in a Changing World,* 44 TELECOMMUNICATION J. 231 (1977).

[25]Mili, *International Jurisdiction in Telecommunication Affairs,* 40 TELECOMMUNICATION J. 288-89 (1973).

[26]The Deputy Secretary General of the ITU recently noted ". . . that the changes of the next ten years will outstrip those of the last three decades and this progress will be largely determined to a great extent by our ability to achieve an effective balance between regulation and technology." Butler, World Telecommunication Development and the Role of the International Telecommunication Union, (Feb. 7, 1978) (paper presented at the International Conference on Trans-National Data Regulation, Brussels).

[27]*See, e.g., Possible Terminology Problems with Emerging Space Services and Technologies,* Doc. No. P/185, Special Preparatory Meeting of the CCIR for the 1979 WARC, Oct. 23, 1978; recommendations of the CCIR to study the employment of spread spectrum techniques.

countries (particularly LDCs) can be met in the near future will be through the use of large space platforms with dynamically controlled "beams" simultaneously interconnecting stations within many countries. The only ITU mechanism for such time-shared, cooperative domestic use of such stations is the major international satellite operating organization—INTELSAT. To some extent, INTELSAT already speaks with greater authority on satellite communication issues than any member country.

It is paradoxical that fairly rigid a priori allotment methods are currently being favored as an institutional tool when the thrust of technological development suggests the adoption of extremely flexible Regulations coupled with cooperative operating arrangements.

The Agenda of the 1979 WARC

The Agenda of the 1979 WARC (set forth in Appendix B to this paper) is very detailed and specific. The intent conveyed is that only adjustments to the existing provisions are contemplated. If the agenda remains in its present form, most of the efforts of the Conference will probably be centered on ". . . allocation of frequency bands . . . ," (item 1), and ". . . the provisions applicable to the coordination, notification and recording of frequency assignments . . . ," (item 2). The allocation of frequency bands is the traditional forte of these conferences, while the latter is expected to give rise to attacks on the "first-come, first-served" principle. When item 2 is joined with item 5 (the provisions relating to the IFRB's methods of work and internal regulations), the LDCs would arguably have an opportunity to make substantial alterations to the existing ITU arrangements.

Additionally, the Conference can adopt new resolutions (item 9) which can, in some measure, add to the existing norms of international law. It can also set the stage for future changes which, due to time or procedural constraints, could not be effected at the 1979 WARC (items 10 and 11).

It is important to note that the agenda is relatively easy to amend:

> at the request of at least one-quarter of the Members of the Union. . . . The changes proposed shall not be finally adopted until accepted by a majority of the Members of the Union. . . .[28]

Thus it is by no means certain that the present agenda represents the final word circumscribing the activities of the Conference.

Conference Issues

At this time, it is difficult to predict the precise nature of the issues the conference will consider in September. The proposals of member countries have not been circulated. However, a few developed countries, including the United States, have engaged in extensive preparatory proceedings and

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[28] 1973 ITU Convention, *supra* note 5, art. 54, cl. 4.

developed significant issues.[29] The LDCs have apparently not yet focused on any particular issues, and probably will not do so until they have had an opportunity to meet extensively among themselves. One of the ITU administrative bodies, the IFRB, has set forth some of its thoughts,[30] and the CCIR has prepared a *Special Preparatory Meeting Report* (November, 1978) for the Conference.

Drawing upon the available material and some of the existing trends, some of the major issues which might surface will be examined. For purposes of discussion in this paper, these issues are grouped into three categories: regulation of radio service use, institutional features of the ITU, and international legal norms.

In addition, there is a minor but jurisdictionally significant issue which involves a modification to the basic definition of radio. Because radio is the linchpin of most of the ITU's regulatory activity, any change in its definition can have far reaching effects. For example, one of the ITU's basic purposes is to

> "effect *allocation of the radio frequency spectrum* and registration of radio frequency assignments in order to avoid harmful interference between radio stations of different countries [emphasis added]."[31]

At present, the "radio frequency spectrum" is defined to include "electromagnetic waves of frequencies lower than 300 GHz. . . ."[32] At the Special Preparatory Meeting (SPM), attention was drawn to a CCIR Plenary Assembly opinion ". . . that the definition of "radiowaves" [citation omitted] is no longer adequate and that the World Administrative Radio Conference, 1979, should give consideration to its modification."[33] The nature of such a modification could involve the elimination of any upper boundary in the definition, thus including all electromagnetic wave communication such as by infrared and light waves. This would be consonant with a modification which was made to the definition of "telecommunication" at the 1973 Plenipotentiary, which added the word *optical* to the definition.[34]

The principal effect of these changes will be to bring communication at optical and near-optical frequencies using lasers within the realm of future ITU activity.

Regulation of Radio Services

The existing international institutional arrangements for radiocommunication have long revolved around the concept of regulation of radio services

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[29]*See* note 3, *supra*. The proposals of most developed countries do not appear to be significantly different from those of the United States on the major issues discussed in this paper.

[30]*See* Technical Preparation of the World Administrative Radio Conference, Geneva, 1979, IFRB Circular-letter No. 429 (Dec. 14, 1978).

[31]1973 ITU Convention, *supra* note 5, art. 4.

[32]Radio Regulations, art. 1, no. 7 (Geneva).

[33]REPORT OF THE SPM, *Forward,* SPM Doc. P/1077 (Nov. 16, 78) referencing CCIR Plenary Assembly Opinion 61 (1978).

[34]1973 ITU Convention, *supra* note 5, Annex 2.

rather than specific allotments to countries. This arrangement affords many technological benefits, as well as avoiding the difficult legal, economic, and political issues associated with the establishment of norms for equitable allotments. It avoids potentially bitter conference disputes which might arise if an allotment approach were taken.[35]

Most of the thousands of pages of Conference documents can be expected to deal with the alteration of hundreds of frequency bands throughout the radio spectrum which are allocated among radio services. Most of these changes, as well as others dealing with the current Radio Regulations, are relatively minor and are of interest to only a few countries. They are effected by amending the Table of Allocations as well as the many technical specifications which are applied to specific services. Several matters, however, are relatively significant or controversial and exemplary of much of the substance of Conference activities.

Shortwave Allocations

Allocations to the various services in the High-Frequency (Shortwave) band are likely to present substantial issues. This band between 3 and 30 MHz, because of its ability to furnish inexpensive, long-range (albeit not entirely reliable) communication, has been a perennial battleground among users of several services. The present allocations have been fairly stable since 1950. Some explanation of the services and their characteristics is necessary.

The *Broadcasting Service* has traditionally been dominated by the powerful, developed countries to convey their ideology overseas, for example, via Radio Moscow, Voice of America, Radio Liberty, etc. The bands allocated for broadcasting are filled with high-power stations which often transmit on the same channel, thus interfering with each other and even operating outside the bands allocated for the service. The lesser developed countries, pointing to the need for a New World Information Order, are endeavoring to change the situation by establishing their own broadcasting stations on these frequencies.

The *Fixed Service,* once the backbone of international communications among the developed countries and their territories, is now used mainly for some military communications by developed countries. Thus, in these countries only the military organizations will wish to maintain the existing fixed

[35]However, this service-oriented approach may face long-range difficulties. The continuing implementation of digital communications and other new technology tends to merge all services into a common system. The ITU's International Consultative Committees are only beginning to study this matter from a technical perspective. New institutional approaches appear to be required. Because of insufficient analysis of the problem, the Conference will almost certainly not deal with such matters, other than to leave the service definitions as loose as possible.

allocations. However, because surplus equipment from the developed countries is readily available and relatively easily maintained, the LDCs still extensively use this service for point-to-point communication between cities and population areas, often in conjunction with the telephone systems.

The *Maritime Mobile Service* extensively uses these frequencies for communications with ships at sea, although this can be expected to change as maritime satellite communication systems become available. Although the countries with extensive maritime interests are most directly affected, the quest for new "International Orders" has resulted in the establishment of a Maritime Mobile allotment plan, which tends to confuse the situation. At the 1974 ITU Maritime WARC, all countries (whether they had maritime interests or not) were given the opportunity to obtain channel allotments. The United States did not feel its needs were satisfied and indicated its concern by including a reservation (indicating that the United States would not be bound) in the Final Acts of the Conference.[36]

The *Aeronautical Mobile Service* utilizes these bands for long-distance communications with international air carriers.

For decades, the *Amateur Service* has enjoyed several shortwave allocations which are extensively used for communication with amateurs in other countries. On occasion, noteworthy public-service needs have been met.

The developed countries can be generally expected to advocate increases in broadcasting and maritime allocations at the expense of the fixed service. The LDCs can be expected to propose increases in broadcasting allocations—but in conjunction with some kind of mechanism which guarantees them a "fair share" of those new channels. They probably will not be receptive to increases in allocations to maritime services, and will likely oppose any reduction in fixed service allocations which can continue to provide them with inexpensive domestic voice communications.

To partially alleviate the crowding in the broadcasting bands, the United States will be advocating the implementation of single-sideband transmission as a 15-year goal. This will have the effect of nearly doubling the number of stations which are able to use the bands. Unfortunately, it will also make obsolete all the shortwave receivers in the hands of listeners. Thus, any kind of firm decision in this matter taken at the Conference will not only affect the flow of information among countries, but will also establish the future marketability standards for shortwave radio receivers as this long-range goal is approached.

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[36]The Reservation was entered "[d]ue to the multitude of allotments (up to 36 countries) on each channel, the elimination of priorities [*i.e.*, the first-come, first-served principle], the adoption of unworkable implementation procedures, and the authority given to the [IFRB] to make allotments on a highly arbitrary basis." REPORT OF THE U.S. DELEGATION TO THE WORLD ADMINISTRATION RADIO CONFERENCE, DEPT. OF STATE, OFFICE OF TELECOMMUNICATIONS SERIAL No. 50 at 28-29 (1974).

Satellite Systems

As the world demand for inexpensive, high-speed transmission of information has increased, satellite communication systems have become increasingly regarded as the major means of satisfying that demand. International traffic has increased manyfold during the past decade, and will continue to increase in the future. In addition, an entirely new breed of satellite system looms on the horizon to serve domestic needs.

Large-scale, user-oriented satellite systems will employ a number of emerging technologies to provide highly efficient, two-way communication (voice, data, facsimile, slow-scan TV) directly to large numbers of very low-cost earth stations. User-oriented systems can bypass existing terrestrial communication networks and furnish service directly to customers. The first generation of such systems is now scheduled to be implemented by Xerox, Satellite Business Systems, Western Union and AT&T, among others, in the early 1980s. These systems are valuable to the developed countries as they provide inexpensive and flexible "electronic mail" services. As the cost of earth terminals decreases, and geostationary space platforms are constructed, the developing countries will have a means to obtain state-of-the-art domestic communication without the necessity of constructing costly terrestrial systems for distributing signals throughout their countries.

Satellite broadcasting to community earth terminals for delivering programming to cable television systems and broadcast stations has resulted in an explosive growth in the number of satellite channels in the United States. Such broadcasting directly to homes recently became a reality in Japan with the launch of a satellite whose programs can be viewed with a small and inexpensive earth terminal.

It is clear that Conference actions affecting satellite communication will be very significant to developed and developing countries alike.

It is not surprising that there is a substantial consensus among ITU members that the allocation of the radio spectrum to communication satellite services must be increased. The United States proposals would nearly double the amount of spectrum currently allocated to non-broadcast, communication satellite services. If any controversy arises in this area, it will not concern how much is allocated, but how it is alloted. That is, will allotments be granted on a "first-come, first-served" basis; or will the spectrum be divided into parcels and given *a priori* to each individual country at an ITU conference; or will it be somehow shared among the users, with satisfactory accommodation for new entrees? This represents a choice of administrative and legislative processes, and is discussed below.

Passive Sensor Allocations

One of the most difficult problems facing humanity today is to assure adequate supplies of food and energy, while improving and safeguarding the physical environment. Our understanding of this problem requires ac-

cess to large amounts of information concerning the land, sea, and air. Visual observation systems such as NASA's Landsat have played a significant role in this field. However, the technology now exists to sense from space the microwave radiation emitted by natural environmental processes on earth. This so-called passive sensing technique can provide real-time information concerning soil moisture, salinity, surface temperature, water vapor, and other surface phenomena as a sensing satellite passes over the earth.

Because this information is immensely valuable, questions have arisen in forums such as the UNCOPUOS regarding rights to the use of such data. If the service is to exist, the radio spectrum bands which are used for such observations must be allocated by the ITU, and the service protected from radio interference by appropriate technical controls. The United States is making proposals to this end. The Conference will likely treat these matters as separate issues, to be resolved in the appropriate forums.

Other Allocation Matters

In addition to the service allocation issues discussed above, most countries can be expected to submit innumerable changes to afford additional radio spectrum to the various services which they deem important. As with shortwave and satellite issues, this occurs by the inclusion in the Radio Regulations of either an exclusive additional allocation (thereby precluding another service from use) or by allowing sharing with other services. This can ultimately have a substantial effect on the kinds of equipment currently employed by these services, often requiring their replacement. It is one of the most difficult and time-consuming processes which will occur at the Convention. Because different allocations can be effected in each of the three ITU regions of the world, different equipment markets also may be created if only a regional, rather than a global, consensus can be achieved.

However, new technology is minimizing the effects of these kinds of spectrum allocation variances. During the last few years, large-scale integrated circuits which can be easily programmed to synthesize an entire range of frequencies have been combined with relatively high-power broadband, solid-state amplifiers to produce very versatile radio transmitters. Thus, the costs associated with producing radio equipment to operate on varying frequency allocations in different markets has been significantly reduced.

Other issues of significance include the proposals to allocate the band between 40 and 300 GHz to various services. The radio spectrum above 40 GHz is now largely unused. However, it is expected to be increasingly used as suitable technology becomes available during the next decade. Because the transmission losses are inherently very high at these frequencies, they are unlikely to be used by other than large-capacity common carrier services, or other specialized users.

There are several issues which have little effect on world communication, but are of substantial importance to the United States. Because the demand

for standard broadcast (AM) stations is far greater than the available channels in the United States, an attempt will be made to expand this band above the current upper boundary of 1500 kHz. This could eventually result in the addition of many hundreds of standard broadcast stations. Though this would require the production of new radio receivers to receive these stations, the added manufacturing costs associated with the change would be very minor. In addition, large numbers of new receivers would normally be placed in the hands of the public via the purchase of new automobiles.

The so-called UHF land-mobile issue is also considered significant in the United States. Because the demand for communication channels for mobile business vehicles in the United States is great, proposals will be introduced to allow the sharing of unused UHF television channels with such services. Actually the United States has already begun to do this in areas where it does not affect neighboring countries. In addition, a proposal will be introduced to allow for the use of satellite communication to provide specialized kinds of communications with mobile vehicles which would include, for example, direct voice and data communications between emergency teams and national medical centers or government authorities.

Institutional Features of the ITU

Matters of general administrative and legislative policy have often been ignored at past administrative radio conferences, which have tended instead to concentrate on the technological details of the Table of Allocations. However, the new ITU members bring with them a perspective which may cause the 1979 Conference to reexamine some of the fundamental organizational features. Thus, questions may overtly or covertly arise concerning the manner in which rights to radio channels and orbital positions are acquired; the adding of needless technical details and procedural complexities to the Regulations; or the apparent lack of permanent planning bodies. These matters appear to give rise to many of the frustrations of LDCs. It is not clear, however, if sufficient impetus exists or consensus can be obtained among the ITU members to consider these matters at the Conference.

In any case, the most that could be achieved at the Conference would be to start a slow movement toward these changes. The Conference is not long enough or sufficiently prepared to devise definitive new institutional schemes. Only the Plenipotentiary could significantly alter the jurisdiction and responsibilities of existing ITU bodies, or create new ones. At most, recommendations would be made to the Administrative Council or the 1982 Plenipotentiary Conference to undertake some action, generally consisting of the establishment of an *ad hoc* study group and a subsequent administrative conference competent to consider the results of the study.

Nonetheless, the various new institutional features which might be suggested or effected are worthy of examination. Before this is done however, some of the different attitudes with which the member countries approach the ITU forum are worthy of mention.

The existing arrangements tend to place an emphasis on copious detail in the Regulations. The adoption of needless technical detail has often been advocated by countries in close proximity to many others, for example, the European nations. Much of radio communication is relatively limited in distance and, if a country is small and surrounded by numerous other sovereigns, that country's interests in radio communication may be better served by effecting relatively detailed arrangements in international forums rather than engaging in numerous bilateral agreements. On the other hand, if a country is relatively isolated from its neighbors by unpopulated regions, fewer international restrictions are usually preferred. Thus, one of the underlying regulatory conflicts during the long history of international radio communication has been between the isolated and the surrounded.

The United States and the Soviet Union, because they enjoy relative geographic isolation, have generally been the leading proponents for arrangements which maximize their domestic flexibility. The European nations, long accustomed to close bilateral working relationships and to the definitive arrangements inherent in civil-law systems, have often sought to finalize their international arrangements within organizations such as the ITU. This is achieved by embodying relatively detailed, unambiguous, and inflexible language in the international agreements to regulate their subsequent use of radio. On the other hand, the more isolated nations have often sought to employ vague language concerning substantive matters and to restrict the freedom of ITU administrative bodies by the inclusion of excessive procedural details. This minimizes the likelihood of adverse administrative decisions and any concomitant loss of sovereignty.

This basic dichotomy of approach can be expected to continue to shape the proposals and arguments of many nations at the 1979 Conference.

Alloting Use: A Posteriori or A Priori Methods?

This question will underlie many of the deliberations of the Conference. It is directly applicable to item 2 of the Conference agenda, which deals with provisions of the Radio Regulations applicable to the coordination, notification, and recording of frequency assignments.

The present ITU allotment provisions can be characterized as *a posteriori* in nature. The "first-come, first-served" or race-notice procedure is in this category. The first country to use a frequency channel or geostationary orbital position and notify the IFRB obtains a right to that parcel of the "radio resource." For terrestrial radio stations, that right is essentially an absolute and perpetual one against all comers. For satellite radio stations, although the right is qualified by provisions in both the 1973 ITU Convention and the 1967 Outer Space Treaty,[37] the earlier claimant does acquire

[37]*See* 1973 ITU Convention, *supra* note 5, art. 33(2); Outer Space Treaty, art. II, Jan. 27, 1967, 18 U.S.T. 2410, T.I.A.S. No. 6347.

significant advantages. No ITU mechanisms exist for arbitrating or adjudicating disputes over access to the geostationary orbit, and the newcomer must approach the existing stake holders and seek such accommodation as they are willing to provide.

There is nothing inherently wrong with *a posteriori* arrangements. Such schemes are efficient, flexible, and encourage development of technology and the exploitation of an infinitely renewable radio resource at minimum cost to everyone. With respect to satellite communications, no disputes over access that could not be resolved among the affected parties have yet arisen. And if intractable disputes do arise, there is no reason to believe that an ITU arbitral or judicial body of competent jurisdiction, or even the International Court of Justice, could not resolve the matter to the satisfaction of the parties.

From the standpoint of regulatory theory, any rapidly changing activity such as communications technology is clearly more suited to *a posteriori* institutional arrangements as a class than the kind of *a priori* arrangements which have recently been used by the ITU. However, the developed countries have not been very active in devising new kinds of *a posteriori* arrangements which are responsive to the concerns of the new ITU members. The continued maintenance of a scheme which perpetuates the advantages of the firstcomer would not be favored even within most domestic systems of government. For example, patent rights and copyrights are granted only for limited periods of time; in the United States, the rights granted by the FCC to broadcast stations are limited in time, subject to review, and conditioned on serving the ". . . public convenience, interest, or necessity. . . ."[38]

During the last two decades in which these problems have arisen, there has been relatively little discussion of them, and few alternatives have been proposed.[39] The situation is greatly aggravated by the tendency of many developed countries to view the ITU as competent to consider only technical matters, leaving no international forum available to establish a meaningful dialogue on legal, economic, and organizational matters.[40]

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[38]47 U.S.C. § 307(a) (1976).

[39]For general discussions, *see, e.g.*, D. LEIVE, *supra* note 12, at chap. 7; Leive, *The Future of the International Telecommunication Union*, American Society of International Law, Studies in Transnational Legal Policy No. 3 (1972); Chayes, *Current Issues in International Telecommunications Policy*, 6 IND. L. REV. 182 (1972).

For discussions which occur within the context of *a posteriori* satellite regime alternatives *see, e.g.*, Sarkar, *Geostationary Orbital Positions for Space Stations*, PROCEEDINGS OF THE TWENTIETH COLLOQUIUM ON THE LAW OF OUTER SPACE 450, 454 (International Institute of Space Law) [hereinafter referred to as the PROCEEDINGS] (Oct. 1977); von Kries, *The Legal Status of the Geostationary Orbit: Introductory Report*, 18TH PROCEEDINGS 27, 34 (Sept. 1975); Sarkar, *International Telecommunication Convention and Its Impact on Institutions*, 17TH PROCEEDINGS 82, 87 (Oct. 1974); Goedhuis, *Some Legal Aspects of the Use of Communications Satellites*, 17TH PROCEEDINGS 53, 62; Kamenetskaya, *Cooperation of States in the Peaceful Exploration and Use of Outer Space Within the Framework of International Organizations*, 17TH PROCEEDINGS 189, 190; Smith, *An Institutional Plan for Multipurpose Space Platforms*, SATELLITE COMMUNICATIONS 27 (August 1978).

[40]*See* Read, *Coming: A Law of Communications Conference*, 11 INT'L LAW. 713 (1977).

The lack of any kind of equitable a posteriori mechanisms in the ITU has no doubt been instrumental in fostering the use of the relatively crude, inflexible a priori methods which were adopted in 1974 and 1977 by the ITU. The development and results of these two major a priori plans could serve as important precedents for future conference activity. The actual plans consist of lengthy channel listings which describe the boundaries of each allotment, indicating the country to which it is allotted. The results, on a country-by-country basis, are presented in Appendices C and D.

There was no legal sophistication associated with the development of these plans. Each country simply submitted the number of channels desired and the resource was divided in such a way as to satisfy all requests. Nonetheless, the results do bear some relationship to the realistic needs of most countries. The United States, in particular, obtained fully twenty-one percent of the total allotments—more than three times as many as the Soviet Union and seven times the number granted the United Kingdom or Japan.[41] In a few instances, allotments were made to nations having little potential use for them, such as landlocked countries. The 1977 broadcasting-satellite allotments provided a minimum of four or five allotments to each country, irrespective of any ability to use the allotments. Above the minimum, the allotments generally correspond to the geographical area and population of the countries involved.

These kinds of a priori schemes could, however, lead the way to rather sophisticated, market-based regimes in the future. During the last twenty years, United States economists and regulatory analysts have considered the possibilities of parcelling and quantifying the value of the radio resource, and allowing the free market, as nearly as possible, to establish the details of use.[42]

The scheme is applicable in principle to the international system as well. Under one recently described arrangement by the Brookings Institution:

> . . . ownership of the spectrum [would be vested] in the international community at large, and the international community could thus benefit from rising opportunity costs in the forms of rising user fees.
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> * * *
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> The revenues from leasing the spectrum could conceivably be used to try to reduce inequities in distribution of essential communications services to poor states....
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[41] *Cf.* note 35, *supra.*

[42] *See, e.g.,* Coase, *The Federal Communications Commission,* 2 J. LAW & ECON. 1 (1959); Meckling, *Management of the Frequency Spectrum,* 1968 WASH. U.L.Q. 26; LEVIN, THE INVISIBLE RESOURCE (1971); DeVany *et al., A Property System for Market Allocation of the Electromagnetic Spectrum: A Legal-Economic-Engineering Study,* 21 STAN. L. REV. 1499 (1969); Jackson, Technology for Spectrum Markets (Nov. 1976) (unpublished dissertation presented at Massachusetts Institute of Technology). Although the concept has remained hypothetical, at least one of its tenets has found some favor in Congress. Under the proposed new communications act users of the spectrum would be assessed a ". . . license fee . . . based on the . . . scarcity value of the [electromagnetic] spectrum." *See* Communications Act of 1978, § 413, Subcommittee on Communications, House Interstate and Foreign Commerce Committee.

> The ITU as now structured would be ill-suited for administering such a system of fees for use. But if the [IFRB] (or some other organ of the ITU) were constituted to strengthen its regulatory powers as suggested above, there is no reason why it could not at the same time be given the responsibility of conducting the rental auctions, collecting the fees, distributing the revenues, and other functions implied by the concept.[43]

As currently employed, the ITU *a priori* plans are too inflexible or ill-defined to have any real market value. They do suffer from the substantial flaw of being vested to nations with no attached opportunity cost, thus encouraging waste and disuse. Although the lack of appreciation of the virtues of the free-market system by many countries remains a potential barrier to the adoption of a scheme such as the Brookings regime, the generation of substantial monies may prove to be an attractive incentive to many LDCs. On the other side of the controversy, the developed countries may find such a scheme an acceptable alternative to the potential allotment of the radio resource to countries which do not have the means to use it. This could result in the effective adoption of the common heritage of mankind as a norm applicable to international radio spectrum/orbit resources.

Improving the Institutional Processes

As noted above, the existing Radio Regulations are burdensome to use and amend. They contain much unnecessary technical detail which could be easily transferred to the CCIR Recommendations, as was done in part by the 1973 World Administrative Telegraph and Telephone Conference for the Telegraph and Telephone Regulations. Such action would hinge on convincing those nations which desire to place or retain such details in the Radio Regulations that the world interest in simplifying the provisions and the attendant administrative and legislative processes outweighs the minor loss in force and effect of the details.

The CCIR is a much more suitable forum for dealing with technological details. The employment of many continuing study groups tends to assure results which are well considered. In addition, the participants possess the necessary technical expertise; the relative frequency of plenary assemblies (every two to three years) allows amendments to be made as the radiocommunication state-of-the-art advances. The concomitant benefit of focusing the attention of the administrative radio conferences on matters more substantial than technological details would benefit all nations.

Although the Conference will consider the suitability of the recently rearranged radio regulations, it is unclear if any more substantive rearrangements will be considered at the Conference.

International Legal Norms

As the Conference agenda makes clear, the matters to be considered are technical and administrative in nature. Nonetheless, actions may be taken

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[43] BROWN, CORNELL, FABIAN & WEISS, REGIMES FOR THE OCEAN, OUTER SPACE, AND WEATHER 194-95 (1977).

which constitute the adoption of international legal norms or substantively affect existing norms. Many have been implied in the issues previously discussed. Two of the more important ones deserve emphasis.

The first involves the issue of legal controls on the flow of information. With respect to satellites, the matter has vexed the UNCOPUOS for the last decade, and resulted in a standoff. The conflict pits nations such as the United States, who are staunch advocates of the free flow of information, against others who desire restraints for reasons of security, cultural maintenance, etc.

A variety of ITU technological devices can be used to achieve a restrictive result. Any conference-derived a priori method of allotment, such as that employed at the 1977 Broadcasting Satellite Conference, will usually result in plans which tend to preclude one country from broadcasting into another. Another method would require any nation emitting radio energy above a threshold value into another nation to satisfactorily coordinate such operation prior to its initiation. This approach, to some extent, has been used in conjunction with broadcasting satellites.[44] Although these methods have not been applied to services other than broadcasting satellites, they could be used, for example, to limit shortwave broadcasting.

The latter method can also be used to restrict the operation of active sensing of another country's physical parameters from space. If this were coupled with the failure to adopt the necessary protections for passive sensing operations, harmful interference to the sensors would prevent the acquisition of the necessary information. The result would be a de facto adoption of legal constraints upon radio earth sensing operations which would have faced substantial opposition if a de jure equivalent had been sought in other forums such as the UNCOPUOS, which operates on a consensus basis.

The second involves the employment of a priori plans by the ITU to effect "fair share" allotments to nations. Such actions may establish an international norm as to what constitutes an equitable distribution of the resource. On the other hand, it could be argued that the plans do nothing more than convey a consensus of what constituted a satisfactory arrangement at the time they were adopted. The actions of the 1979 Conference may reveal more.

At the 1977 Broadcasting-Satellite Conference, a provision was adopted which establishes the basic principles which are to govern the 1983 Region 2 conference to allot the orbit/spectrum resource for broadcasting-satellites:

> The plan shall . . . ensure that the . . . requirements submitted by the various administrations are met in an equitable manner satisfactory to all the countries concerned . . . [and] that each administration in the region should be guaranteed

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[44]*See, e.g.*, Maio, *Direct Broadcasting by Satellite*, 1 COMM/ENT 193, 197 (1978); Moore, *Direct Broadcast Satellites by Treaty or Regulation: The Committee on Peaceful Uses of Outer Space v. the ITU*, 18TH PROCEEDINGS 341 (Oct. 1976).

> a minimum number of channels (4). . . . Above this minimum, the special characteristics of the countries (size, time zones, language differences, etc.) shall be taken into account.[45]

The results of the 1977 Conference match the above rule rather closely. Multilateral treaty provisions such as these, coupled with actual allotments, may well give rise to new international norms. Additional provisions such as this may be adopted at the 1979 Conference.

Conference Effects

Because the actions of the 1979 WARC are uncertain, any assessment of the effects of the Conference is highly speculative. Various authors have attached widely varying degrees of importance to the Conference. (*See* Appendix A). Some have no doubt exaggerated the capabilities of this WARC. The probability of action which will have profound effects is minimal since the system of international institutions tends to preclude such changes. Nonetheless, the major potential effects can be summarized as follows.

Satellite Radio Communication

There is a substantial chance that the Conference will take actions which will have a considerable effect on the amount of new spectrum/orbit resource that can be used for international and domestic telecommunication, as well as on the flexibility with which it can be employed. The results are likely to be highly favorable for enhancing international satellite communication and for domestic, particularly United States, satellite communication. The number, nature and implementation dates of high capacity, flexible, and innovative United States satellite communication systems of the next decade may hinge on the outcome.

The domestic satellite results could affect the present United States policy of so-called open entry, which allows nearly anyone to attempt to secure an authorization to provide domestic satellite communication services.[46] If the availability of the spectrum/orbit resource to the United States is adversely affected by actions taken at the Conference, the efficacy of the free entry policy will likely be revisited.

Market Effects

It is certain that the Conference will allocate new frequency bands that differ from region to region. Although new technology will increasingly

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[45]Final Acts of the 1977 Broadcasting-Satellite Conference, art. 12 (Geneva 1977).

[46]"Rather than attempting to prescribe arrangements for an initial program [the FCC] believe[s] it is preferable to permit potential applicants to take the initiative in submitting concrete system proposals for the Commission's consideration." *First Report and Order,* 22 F.C.C. 2d 86, 93 (1970).

reduce the marketability effects of such actions, some provisions will be adopted that affect the marketability of equipment.

If the Conference should establish a long-range goal of single-sideband transmission for shortwave broadcasting, a worldwide demand for new receivers would eventually be created. Favorable Conference actions will probably be taken regarding the United States proposal to expand the AM Standard Broadcast band. This will certainly affect the future development of that band in the United States, as well as create a demand for new radio receivers. Similarly, actions concerning sharing in the UHF could affect the availability of mobile business vehicle communications near the Canadian border.

Flow of Information

There is some chance that the Conference will take some actions which will significantly affect the flow of information both into and out of nations. If the shortwave broadcasting bands are not substantially enlarged, or provisions are adopted which limit use of the bands by developed countries, the result would be less information flowing from developed countries.

If passive sensing satellites are not given the necessary allocations and protection, the world's knowledge concerning the state of global weather and food resources could be significantly diminished.

Costs of Communication

If the Conference should start a movement toward allotment schemes which assess an opportunity cost to use the spectrum/orbit resource, the cost of satellite communication could rise slightly in the near term. In the long-term, however, the costs might be less due to the employment of more efficient methods encouraged by the market system.

Future Administrative Processes of the ITU

There is a possibility that the Conference might decide that significant revisions to the jurisdiction and functions of the ITU's permanent bodies are appropriate. Although the Conference could for the most part only set the wheels in motion to effect such changes, any such decisions made could produce substantial and long-reaching effects.

Appendix A

Bibliography of Recent 1979 WARC Related Materials*

U.S. Dept. of State, *1979 World Administrative Radio Conference Background Memorandum,* EB/TCA/TD (Aug. 1978).

_____, *Proposals of the United States of America for the World Administrative Radio Conference (Geneva, 1979),* Conference Doc. No. __. [The U.S. proposals were transmitted to the Secretary General of the ITU on January 30, 1979, in the form of eleven documents as follows: Doc. 1, General Views; Doc. 2, Rules for the Use of Frequencies; Doc. 3, Discussion of the Various Radio Services and the Need for Allocation Changes; Doc. 4, Proposals for the Allocation Table in the Bands below 27.5 MHz; Doc. 5, Proposals for the Allocation Table in the Band 27.5-1215 MHz; Doc. 6, Proposals for the Allocation Table in the Band 1215 MHz-40 GHz, Doc. 7, Proposals for the Allocation Table in the Bands above 40 GHz; Doc. 8, Technical Proposals; Doc. 9, Regulatory Proposals; Doc. 10, General and Administrative Proposals; Doc. 11, Rearrangement of the Radio Regulations.]

_____, *Telecommunications National Policy and International Agreement: A Briefing Paper in Preparation for the World Administrative Radio Conference of 1979* (International Institute of Communications, London, Sept. 1977).

Report and Order, 70 F.C.C. 2d 1193 (1978). *See also FCC Announces Its Proposals for the ITU 1979 World Administrative Radio Conference,* FCC NEWS, Report No. 14619 (Dec. 6, 1978).

J. Beggans, Proposal for the Establishment of a Committee on International Telecommunications (Sept. 1978) (paper presented to the Executive Council of the International Law Assn, Manila).

S. BROWN, N. CORNELL, L. FABIAN, & WEISS, REGIMES FOR THE OCEAN, OUTER SPACE, AND WEATHER, chs. 13 & 14 (1977).

R. Butler, World Telecommunication Development and the Role of the International Telecommunication Union (Feb. 1978) (paper presented at the International Conference on Trans-national Data Regulation, Brussels).

G. Codding, The New Nations and the ITU: Some Policy Implications for the Future (May 1978) (paper presented at the Sixth Annual Telecommunications Policy Research Conference, Airlie Va.).

Codding, *The United States and the ITU in a Changing World,* 44 TELECOMMUNICATION J. 232 (1977). [Also available as U.S. Dept. of Commerce, Office of Telecommunications Special Publication 75-6].

Gressman & Kopitz, *The 1979 WARC and World Frequency Allocations: the view from Western Europe,* Television/Radio Age International (June 1978).

J. Gunther, The United States and the Debate on the World "Information Order" (Aug. 1978) (a study prepared by the Academy for Educational Development, Washington).

*This list presents a selection of timely materials which discuss significant aspects of the 1979 WARC from a wide variety of perspectives.

Gunter, *An Introduction to the Great Debate,* 28 J. COM. 142 (1978).

Howkins, *Access to the Spectrum,* 6 INTERMEDIA 14 (No. 6) (June 1978).

Kroloff & Cohen, *Encounters with the Third World Seen in Allocating Frequencies,* 201 SCI. 513 (1978).

Moore, *Direct Broadcast Satellites by Treaty or Regulation: The Committee on Peaceful Uses of Outer Space v. the ITU,* PROCEEDINGS OF THE EIGHTEENTH COLLOQUIUM ON THE LAW OF OUTER SPACE 341 (International Institute of Space Law, Oct. 1976).

Read, *Coming: A Law of Communications Conference,* 11 INT'L LAW 713 (1977).

Rutkowski, *The Regulatory Regime of the International Telecommunication Union-New Directions,* __ TELECOMMUNICATION J. __ [1979].

Sarkar, *Geostationary Orbital Positions for Space Stations,* PROCEEDINGS OF THE TWENTIETH COLLOQUIUM ON THE LAW OF OUTER SPACE 450 (International Institute of Space Law, Oct. 1977).

Sarkar, *International Telecommunication Convention and Its Impact on Institutions,* PROCEEDINGS OF THE SEVENTEENTH COLLOQUIUM OF THE LAW OF OUTER SPACE 82, (International Institute of Space Law, Oct. 1974).

Schaefer, *The 1979 World Administrative Radio Conference,* SATELLITE COMMUNICATIONS (March 1978).

WARC: One Senator's View, address by Senator H. Schmidt, Corporate Policy Conference on the World Administrative Radio Conference, Washington (Oct. 4, 1978).

R. Schrum, Foreign Frequency Policies: Their Impact on WARC 1979 (Sept. 1978) (paper presented at IEEE Eastcon 1978).

von Kries, *The Legal Status of the Geostationary Orbit: Introductory Report,* PROCEEDINGS OF THE EIGHTEENTH COLLOQUIUM ON THE LAW OF OUTER SPACE 27 (International Institute of Space Law, Sept. 1975).

Woldman, J., *An Introduction to the Foreign Policy Implications of the 1979 World Administrative Radio Conference,* CONGRESSIONAL RESEARCH SERVICE REPORT prepared for the Senate Foreign Relations Committee (Mar. 31, 1978).

Yeomans, *WARC '79: The Future of World Communications,* 195 TELEPHONY__ (No. 23) (Dec. 4, 1978).

The following basic treatises are also recommended:

G. Codding, THE INTERNATIONAL TELECOMMUNICATION UNION (1952).

D. Leive, INTERNATIONAL TELECOMMUNICATIONS AND INTERNATIONAL LAW: THE REGULATION OF THE RADIO SPECTRUM (1970).

Mili, *International Jurisdiction in Telecommunication Affairs,* 40 TELECOMMUNICATION J. 122, 174, 286, 344, 562, 746 (1973); 41 TELECOMMUNICATION J. 170 (1974) [published serially].

Appendix B

Agenda of the 1979 World Administrative Radio Conference**

2.1 To review and, where necessary, revise the provisions of the Radio Regulations relating to terminology, the allocation of frequency bands and the directly associated regulations [Regulation citations omitted];

2.2 To review and, where necessary, revise the provisions applicable to the coordination, notification and recording of frequency assignments except those Articles relating to a single service [Regulation citations omitted];

2.3 To review and, where necessary, revise the other Articles applicable to more than one service [Regulation citations omitted];

2.4 To make any necessary consequential editorial amendments to other provisions of the Radio Regulations and the Additional Radio Regulations resulting from the action taken [above];

2.5 To review the report on the activity of the IFRB and revise, where necessary, the provisions relating to its methods of work and internal regulations [Regulation citations omitted];

2.6 To study the technical aspects for the use of radio communications for marking, identifying, locating and communicating with the means of medical transport protected under the 1949 Geneva Conventions . . . ;

2.7 To take account of [citation omitted] on the possible Re-arrangement of the Radio Regulations and Additional Radio Regulations, to make such consequential changes as may be necessary to harmonize the Radio Regulations as well as the Additional Radio Regulations and to undertake any further necessary refinement and deletion of superfluous or redundant provisions;

2.8 To consider the proposals based on the CCITT studies [relating to accounting for public correspondence in maritime radio communications, and to the interpretation of the provisions affecting the public correspondence services] and to take appropriate decisions;

2.9 To consider the resolutions and the recommendations adopted by administrative radio conferences, to take such action as may be considered necessary and to adopt such new resolutions and recommendations as may be necessary;

2.10 To propose to the Administrative Council and to the next Plenipotentiary Conference a programme for convening future administrative radio conferences to deal with specific services;

2.11 To provide, for the benefit of future administrative radio conferences, such guidelines as may be found necessary for optimum use of the frequency spectrum.

**Document No. 1 of the Conference (Sept. 29, 1978). Adopted as Res. 801 at the 33d Session (1978) of the ITU Administrative Council.

Appendix C

Allotment Results—The 1974 Maritime Conference

REGION*	CODE†	ALLOTMENT‡	PERCENT§	NATION OR GEOGRAPHICAL AREA
3	ADL	—	—	Adelie Land [Antarctica]#
3	AFG	—	—	Afghanistan, Democratic Republic of||
1	AFS	15	.49	South Africa, Republic of
1	AGL	10	.33	Angola, People's Republic of
1	ALB	9	.29	Albania, Socialist People's Republic of
1	ALG	23	.75	Algeria, Democratic and Popular Republic of
2	ALS	79	2.58	Alaska [U.S.A.]
3	AMS	—	—	St. Paul and Amsterdam Islands [France]
1	AND	—	—	Andorra, Principality of**
1	AOE	—	—	Western Sahara [Morocco]
		42	1.37	Argentine Republic
		1	.03	Argentine Republic (Central)
		2	.07	Argentine Republic (North)
		3	.10	Argentine Republic (South)
2	ARG	48	1.57	Argentine Republic [Total]
1	ARS	12	.39	Saudi Arabia, Kingdom of
1	ASC	2	.07	Ascension [U.K.]
2	ATN	4	.13	Netherlands Antilles [Netherlands]
		29	.95	Australia, Commonwealth of
		4	.13	Australia, Commonwealth of (East)
		4	.13	Australia, Commonwealth of (West)
3	AUS	37	1.21	Australia, Commonwealth of [Total]
1	AUT	—	—	Australia, Republic of||
1	AZR	12	.39	Azores [Portugal]
2	B	23	.75	Brazil, Federative Republic of
2	BAH	1	.03	Bahamas, Commonwealth of the
1	BDI	—	—	Burundi, Republic of||
1	BEL	28	.91	Belgium, Kingdom of
1	BEN	6	.20	Benin, People's Republic of
2	BER	6	.20	Bermuda [U.K.]
3	BGD	44	1.44	Bangladesh, People's Republic of
1	BHR	8	.26	Bahrain, State of
3	BIO	—	—	British Indian Ocean Territory [U.K.]
1	BLR	—	—	Byelorussian Soviet Socialist Republic||

Region*	Code†	Allotment‡	Percent§	Nation or Geographical Area
2	BOL	8	.29	Bolivia, Republic of‖
1	BOT	—	—	Botswana, Republic of‖
2	BRB	8	.29	Barbados
3	BRM	—	—	Burma, Socialist Republic of the Union of
3	BRU	—	—	Brunei**
1	BUL	18	.59	Bulgaria, People's Republic of
1	CAF	—	—	Central African Empire‖
		2	.07	Canada (Central)
		19	.62	Canada (East)
		6	.20	Canada (North)
		24	.79	Canada (West)
2	CAN	51	1.68	Canada [Total]
3	CAR	—	—	Caroline Islands [U.S. Trust]
3	CBG	8	.26	Democratic Kampuchea
		20	.65	Chile, Republic of
		1	.03	Chile, Republic of (Central)
		2	.07	Chile, Republic of (North)
		1	.03	Chile, Republic of (South)
2	CHL	29	.95	Chile, Republic of [Total including PAQ]
3	CHN	49	1.06	China, People's Republic of
3	CHR	—	—	Christmas Island [Australia]
3	CKH	5	.16	Cook Islands [New Zealand dep.]
3	CKN	—	—	Cook Islands (Northern Group) [N.Z. dep.]
2	CLM	4	.13	Colombia, Republic of
3	CLN	8	.26	Sri Lanka, Democratic Socialist Republic of
1	CME	10	.33	Cameroon, United Republic of
1	CNR	18	.59	Canaries [Spain]
1	COG	13	.43	Congo, People's Republic of the
1	COM	1	.03	Comoros, Federal and Islamic Republic of the
1	CPV	10	.33	Cape Verde, Republic of
1	CRO	—	—	Crozet Archipelago [France]
1	CTI	12	.39	Ivory Coast, Republic of the
2	CTR	—	—	Costa Rica, Republic of
2	CUB	20	.65	Cuba, Republic of
1	CVA	—	—	Vatican City, State of the
1	CYP	15	.49	Cyprus, Republic of
1	D	26	.85	Germany, Federal Republic of
1	DDR	20	.65	German Democratic Republic
1	DJI	3	.10	Djibouti, Republic of

REGION*	CODE†	ALLOTMENT‡	PERCENT§	NATION OR GEOGRAPHICAL AREA
1	DNK	49	1.60	Denmark, Kingdom of
2	---	—	—	Dominica, Commonwealth of**
2	DOM	1	.03	Dominican Republic
		49	1.60	Spanish State
1	E	67	2.19	Spanish State [Total including CNR]
1	EGY	12	.39	Egypt, Arab Republic of
2	EQA	—	—	Ecuador, Republic of
1	ETH	26	.85	Ethiopia
		28	.92	French Republic
1	F	60	1.96	France Republic [Total GDL, GUF, DER, MRT, NCL, OCE, SPM]
3	FJI	8	.26	Fiji, Dominion of
2	FLK	2	.07	Falkland Islands [U.K.]
1	FNL	29	.95	Finland, Republic of
		50	1.64	United Kingdom of Great Britain and Northern Ireland
1	G	92	3.01	United Kingdom of Great Britain and Northern Ireland [Total including ASC, BER, FLK, GIB, GIL, HKG, NHB, SHN, SLM, TKS]
1	GAB	11	.36	Gabonese Republic
1	GCA	—	—	United Kingdom Territories in Region 1
2	GCB	—	—	United Kingdom Territories in Region 2
3	GCC	—	—	United Kingdom Territories in Region 3
2	GDL	9	.29	Guadeloupe [France]
1	GHA	12	.39	Ghana, Republic of
1	GIB	7	.23	Gibraltar [U.K.]
3	GIL	4	.13	Gilbert Islands [U.K.]
1	GMB	3	.10	Gambia, Republic of the
1	GNE	—	—	Equatorial Guinea, Republic of
1	GNP	8	.26	Guinea-Bissau, Republic of
1	GRC	79	2.58	Hellenic Republic
2	GRL	—	—	Greenland [Denmark]
2	GTM	1	.03	Guatemala, Republic of
2	GUB	1	.03	Guyana, Cooperative Republic of
2	GUF	3	.09	Guyana [French territ.]
1	GUI	—	—	Guinea, Republic of
3	GUM	64	2.09	Guam [U.S.A.]
3	HKG	12	.39	Hongkong [U.K.]
2	HNB	—	—	Belize**
2	HND	1	.03	Honduras, Republic of

Region*	Code†	Allotment‡	Percent§	Nation or Geographical Area
1	HNG	24	.79	Hungarian People's Republic||
1	HOL	22	.72	Netherlands, Kingdom of
2	HTI	—	—	Haiti, Republic of
1	HVO	—	—	Upper Volta, Republic of||
2	HWA	69	2.26	Hawaii [U.S.A.]
3	HWL	—	—	Howland Island [U.S.A. territ.]
1	I	34	1.11	Italian Republic
3	ICO	—	—	Cocos Keeling Islands [Australian dep.]
		16	.52	India, Republic of (East)
		16	.52	India, Republic of (West)
3	IND	32	1.04	India, Republic of [Total]
3	INP	—	—	Portuguese India [Portugal]
3	INS	40	1.31	Indonesia, Republic of
2	IOB	—	—	British West Indies [U.K.]
1	IRL	—	—	Ireland
3	IRN	55	1.80	Iran, Empire of
1	IRQ	27	.88	Iraq, Republic of
1	ISL	20	.65	Iceland, Republic of
1	ISR	21	.69	Israel, State of
3	IWA	—	—	Iwo Jima [Japan]
3	J	99	3.24	Japan
3	JAR	—	—	Jarvis Island [U.S.A. territ.]
2	JMC	10	.33	Jamaica
2	JON	—	—	Johnston Island [U.S.A. territ.]
1	JOR	1	.03	Jordan, Hashemite Kingdom of
1	KEN	15	.49	Kenya, Republic of
3	KER	2	.07	Kerguelen Islands [France]
3	KOR	12	.39	Korea, Republic of
3	KRE	—	—	Korea, Democratic People's Republic of
1	KWT	12	.39	Kuwait, State of
3	LAO	—	—	Lao People's Democratic Republic||
1	LBN	3	.10	Lebanon, Republic of
1	LBR	12	.39	Liberia, Republic of
1	LBY	14	.46	Socialist People's Libyan Arab Jamahiriya
1	LIE	—	—	Liechtenstein, Principality of||
1	LSO	—	—	Lesotho, Kingdom of||
1	LUX	—	—	Luxembourg, Grand Duchy of||
3	MAC	4	.13	Macao [Portugal]
1	MAU	5	.16	Mauritius
1	MCO	8	.26	Monaco, Principality of
3	MCS	—	—	Marcus Island [Japan]

REGION*	CODE†	ALLOTMENT‡	PERCENT§	NATION OR GEOGRAPHICAL AREA
1	MDG	13	.43	Madagascar, Democratic Republic of
2	MDR	12	.39	Madeira [Portugal]
2	MDW	—	—	Midway Islands [U.S.A. territ.]
		19	.62	United Mexican States
		1	.03	United Mexican States (East)
		1	.03	United Mexican States (West)
2	MEX	21	.68	United Mexican States [Total]
3	MLA	12	.39	Malaysia
1	MLD	—	—	Maldives, Republic of
1	MLI	—	—	Mali, Republic of||
1	MLT	1	.03	Malta, Republic of
1	MNG	—	—	Mongolian People's Republic||
1	MOZ	12	.39	Mozambique, People's Republic of
3	MRA	—	—	Mariana Islands [U.S.A. trust]
1	MRC	24	.79	Morocco, Kingdom of
3	MRL	—	—	Marshall Islands [U.S.A. trust]
1	MRN	—	—	Marion Island [S. Africa]
2	MRT	9	.29	Martinique [France]
1	MTN	12	.39	Mauritania, Islamic Republic of
1	MWI	—	—	Malawi, Republic of||
1	MYT	—	—	Mayotte Island [Comoros/France disp.]
2	NCG	—	—	Nicaragua, Republic of
3	NCL	3	.10	New Caledonia [French dep.]
2	NGR	—	—	Niger, Republic of||
3	NHB	3	.10	New Hebrides [British-French Condominium]
1	NIG	18	.59	Nigeria, Republic of
3	NIU	5	.16	Niue Island [New Zealand dep.]
1	NMB	—	—	Namibia**
1	NOR	76	2.49	Norway, Kingdom of
3	NPL	—	—	Nepal, Kingdom of||
3	NRU	—	—	Nauru, Republic of
		12	.39	New Zealand, Dominion of
3	NZL	22	.72	New Zealand, Dominion of [Total including CKU, NIU]
3	OCE	3	.10	French Polynesia [France]
1	OMA	2	.07	Oman, Sultanate of
3	PAK	39	1.28	Pakistan, Islamic Republic of
2	PAQ	4	.13	Easter Island [Chile]
3	PHL	16	.52	Philippines, Republic of the
3	PHX	—	—	Phoenix Islands [U.K.]
3	PLM	—	—	Palmyra Island [U.S.A. territ.]
3	PNG	9	.29	Papua New Guinea

Region*	Code†	Allotment‡	Percent§	Nation or Geographical Area
2	PNR	7	.23	Panama, Republic of
2	PNZ	37	1.21	Panama Canal Zone [U.S.A. territ.]
1	POL	29	.95	Polish People's Republic
		12	.39	Portuguese Republic
1	POR	41	1.34	Portuguese Republic [Total including MAC, MDR, TMP]
2	PRG	9	.29	Paraguay, Republic of‖
2	PRU	30	.98	Peru, Republic of
3	PTC	—	—	Pitcairn Island [U.K.]
2	PTR	59	1.93	Puerto Rico [U.S.A. dep.]
1	QAT	—	—	Qatar, State of
1	REU	6	.20	Reunion [French Department]
1	RHS	—	—	Southern Rhodesia [U.K.]‖
1	ROD	—	—	Rodriquez [Mauritius dep.]
1	ROU	23	.75	Romania, Socialist Republic of
1	RRW	—	—	Rwanda, Republic of‖
3	RYU	—	—	Ryu Kyu Islands [Japan]
1	S	43	1.41	Sweden, Kingdom of
1	SDN	—	—	Sudan, Democratic Republic of
1	SEN	4	.13	Senegal, Republic of
1	SEY	4	.13	Seychelles**
1	SHN	3	.10	St. Helena [U.K.]
3	SLM	1	.03	Solomon Islands**
2	SLV	—	—	El Salvador, Republic of
3	SMA	—	—	American Samoa [U.S.A. territory]
3	SMO	6	.20	Western Somoa**
1	SMR	—	—	San Marino, Republic of‖
3	SNG	11	.36	Singapore, Republic of
1	SOM	1	.03	Somali Democratic Republic
2	SPM	3	.10	St. Pierre and Miquelon [French] territ.]
1	SRL	1	.03	Sierra Leone, Republic of
1	STP	8	.26	Sao Tome and Principe, Democratic Republic of
1	SUI	13	.43	Swiss Confederation‖
2	SUR	4	.13	Surinam, Republic of
2	SWN	—	—	Swan Island [U.S.A.]
1	SWZ	—	—	Swaziland, Kingdom of‖
1	SYR	—	—	Syrian Arab Republic
1	TCD	—	—	Chad, Republic of‖
1	TCH	9	.29	Czechoslovak Socialist Republic‖
1	TGK	5	.16	Tanzania, United Republic of (Tanganyika)
1	TGO	6	.20	Togolese Republic

REGION*	CODE†	ALLOTMENT‡	PERCENT§	NATION OR GEOGRAPHICAL AREA
3	THA	18	.59	Thailand, Kingdom of
3	TKL	—	—	Tokelau Islands [New Zealand dep.]
2	---	2	.07	Turks and Caicos Islands [U.K.]
1	TON	—	—	Tonga, Kingdom of
1	TRC	—	—	Tristan da Cunha [South Africa]
2	TRD	—	—	Trinidad and Tobago, Republic of
1	TUN	12	.39	Tunesia, Republic of
1	TUR	36	1.18	Turkey, Republic of
3	TUV	—	—	Tuvalu**
1	UAE	—	—	United Arab Emirates
1	UGA	—	—	Uganda, Republic of||
1	UKR	35	1.14	Ukrainian Soviet Socialist Republic
2	URG	6	.20	Uruguay, Oriental Republic of
		21	.69	Union of Soviet Socialist Republics (Southern Asia)
		19	.62	Union of Soviet Socialist Republics (Northern Asia)
		44	1.44	Union of Soviet Socialist Republics (Europe)
		42	1.37	Union of Soviet Socialist Republics (Far East)
		38	1.24	Union of Soviet Socialist Republics (North West)
1	URS	199	6.50	Union of Soviet Socialist Republics [Total including UKR]
		35	1.14	United States of America (Central)
		128	4.19	United States of America (East)
		122	3.99	United States of America (West)
		93	3.04	United States of America (South)
2	USA	649	21.23	United States of America [Total, including ALS, GUM, HWA, PTR]
2	VEN	11	.36	Venezuela, Republic of
2	VIR	—	—	Virgin Islands [U.S.A./U.K.]
3	VTN	—	—	Viet-Nam, Socialist Republic of
3	WAK	—	—	Wake Island [U.S.A. Territ.]
3	WAL	—	—	Wallis and Futuna Islands [French dep.]
1	YEM	3	.10	Yemen Arab Republic
1	YMS	4	.13	Yemen, People's Democratic Republic of

Region*	Code†	Allotment‡	Percent§	Nation or Geographical Area
1	YUG	24	.79	Yugoslavia, Socialist Federal Republic of
1	ZAI	7	.23	Zaire, Republic of
1	ZAN	—	—	Tanzania, United Republic of (Zanzibar)
1	ZMB	—	—	Zambia, Republic of||

Source. Compiled from Appendix 25 Mar. 2 to the Radio Regulations, "Frequency Allotment Plan for Coast Radiotelephone Stations operating in the Exclusive Maritime Mobile Bands between 4000 and 23000 kHz," Final Acts of the World Maritime Administrative Radio Conference, Geneva 1974, Annex 56.

*ITU Region. *See* App. 24, Radio Regulations (Geneva 1976).

†ITU/IFRB Country Symbol. *See* Table 1, Preface, International Frequency List. The entire list is set forth.

‡Each allotment consisted of a frequency channel—one of 170 different channels. Because each channel was allotted to several countries, it was implied that the channel would be geographically shared, i.e., each country had a "service area." Some countries' service areas were subdivided into regions, such as South, North, etc. *See* Final Acts, *supra* note 1, Annex 56 n. 6.

§Percentage of the total allotments made in the Plan, i.e., 3055.

||Landlocked country. [One of the arguments raised against this plan is that some landlocked countries obtained allotments.]

#Independent countries are listed using the long-form name of the government. Territories, states, departments, dependencies, etc., are listed with an associated notation in brackets.

**Not an ITU member.

Appendix D

Allotment Results—The 1977 Broadcasting Satellite Conference

REGION*	CODE†	ALLOTMENT‡	NATION OR GEOGRAPHICAL AREA
3	AFG	8	Afghanistan, Republic of
1	AGL	5	Angola, People's Republic of
1	ALB	5	Albania, Socialist People's Republic of
1	ALG	11	Algeria, Democratic and Popular Republic of
1	AND	5	Andorra, Principality of [Not an ITU member]
1	ARS	11	Saudi Arabia, Kingdom of
3	AUS	36	Australia, Commonwealth of
1	AUT	5	Austria, Republic of
1	AZR	5	Azores [Portugal]
1	BDI	5	Burundi, Republic of
1	BEL	5	Belgium, Kingdom of
1	BEN	5	Benin, People's Republic of
3	BGD	5	Bangladesh, People's Republic of
1	BHR	4	Bahrain, State of
1	BLR	2	Byelorussian Soviet Socialist Republic
1	BOT	5	Botswana, Republic of
3	BRM	4	Burma, Socialist Republic of the Union of
3	BRU	2	Brunei [Not an ITU member]
1	BUL	5	Bulgaria, People's Republic of
1	CAF	5	Central African Empire
3	CAR	5	Caroline Islands [U.S.A. trust]
3	CBG	4	Democratic Kampuchea
3	CHN	54	China, People's Republic of,
3	CKH	4	Cook Islands [New Zealand dep.]
3	CKN	4	Cook Islands (Northern Group) [New Zealand dep.]
3	CLN	4	Sri Lanka, Republic of
1	CME	5	Cameroon, United Republic of
1	CNR	5	Canaries [Spain]
1	COG	5	Congo, People's Republic of the
1	COM	3	Comoros, State of
1	CPV	5	Cape Verde, Republic of
1	CTI	5	Ivory Coast, Republic of the
1	CVA	5	Vatican City, State of
1	CYP	5	Cyprus, Republic of
1	D	5	Germany, Federal Republic of
1	DDR	5	German Democratic Republic
1	DJI	5	Djibouti, Republic of

Region*	Code†	Allotment‡	Nation or Geographical Area
1	DNK	7	Denmark, Kingdom of
1	E	5	Spain (Spanish State)
1	EGY	5	Egypt, Arab Republic of
3	ETH	5	Ethiopia
1	F	5	France (French Republic)
3	FJI	3	Fiji, Dominion of
1	FNL	5	Finland, Republic of
1	G	5	United Kingdom of Great Britain and Northern Ireland
1	GAB	5	Gabonese Republic
1	GHA	5	Ghana, Republic of
1	GMB	5	Gambia, Republic of the
1	GNE	5	Equatorial Guinea, Republic of
1	GNP	5	Guinea-Bissau, Republic of
1	GRC	5	Greece (Hellenic Republic)
1	GUI	5	Guinea, Republic of
3	GUM	5	Guam [U.S.A.]
1	HNG	5	Hungarian People's Republic
1	HOL	5	Netherlands, Kingdom of the
1	HVO	5	Upper Volta, Republic of
1	I	5	Italy (Italian Republic)
–	IFB	10	International Telecommunication Union—IFRB§
3	IND	49	India, Republic of
3	INS	21	Indonesia, Republic of
1	IRL	5	Ireland
3	IRN	5	Iran, Empire of
1	IRQ	5	Iraq, Republic of
1	ISL	8	Iceland, Republic of
1	ISR	4	Israel, State of
3	J	8	Japan
1	JOR	5	Jordan, Hashemite Kingdom of
1	KEN	5	Kenya, Republic of
3	KOR	6	Korea, Republic of
3	KRE	5	Korea, Democratic People's Republic of
1	KWT	5	Kuwait, State of
3	LAO	5	Lao People's Democratic Republic
1	LBN	5	Lebanon, Republic of
1	LBR	3	Liberia, Republic of
1	LBY	10	Libya (Socialist People's Arab Jamihiriya)
1	LIE	5	Liechtenstein, Principality of
1	LSO	5	Lesotho, Kingdom of
1	LUX	5	Luxembourg, Grand Duchy of
1	MAU	9	Mauritius

REGION*	CODE†	ALLOTMENT‡	NATION OR GEOGRAPHICAL AREA
1	MCO	5	Monaco, Principality of
1	MDG	5	Madagascar, Democratic Republic of
3	MLA	9	Malaysia
3	MLD	2	Maldives, Republic of
1	MLI	10	Mali, Republic of
1	MLT	4	Malta, Republic of
1	MNG	5	Mongolian People's Republic
1	MOZ	5	Mozambique, People's Republic of
3	MRA	5	Mariana Islands [U.S.A. trust]
1	MRC	5	Morocco, Kingdom of
3	MRL	5	Marshall Islands [U.S.A. trust]
1	MTN	10	Mauritania, Islamic Republic of
1	MWI	5	Malawi, Republic of
1	MYT	5	Mayotte Island [Comoros/France (disputed)]
3	NCL	4	New Caledonia and Dependencies [French dep.]
1	NGR	5	Niger, Republic of the
3	NHB	4	New Hebrides (British-French Condominium) [U.K.–France]
1	NIG	5	Nigeria, Federal Republic of
3	NIU	2	Niue Island [New Zealand dep.]
1	NMB	4	Namibia [Not an ITU member]
1	NOR	5	Norway, Kingdom of
3	NPL	3	Nepal, Kingdom of
3	NRU	4	Nauru, Republic of
3	NZL	17	New Zealand, Dominion of
3	OCE	4	French Polynesia [France]
1	OMA	5	Oman, Sultanate of
3	PAK	11	Pakistan, Islamic Republic of
3	PHL	5	Philippines, Republic of
1	PLM	5	Palmyra Island [U.S.A.]
3	PNG	7	Papua New Guinea
1	POL	5	Polish People's Republic
1	POR	5	Portuguese Republic
1	QAT	5	Qatar, State of
1	REU	5	Reunion, French Department of [French dep.]
1	ROU	5	Roumania, Socialist Republic of
1	RRW	5	Rwanda, Republic of
1	S	5	Sweden, Kingdom of
1	SDN	15	Sudan, Democratic Republic of the
1	SEN	5	Senegal, Republic of the
3	SMA	4	American Samoa [U.S.A. dep.]
3	SMO	5	Western Samoa [Not an ITU member]
1	SMR	4	San Marino, Republic of
3	SNG	5	Singapore, Republic of
1	SOM	5	Somali Democratic Republic

REGION*	CODE†	ALLOTMENT‡	NATION OR GEOGRAPHICAL AREA
1	SRL	5	Sierra Leone
1	STP	5	Sao Tome and Principe, Democratic Republic of
1	SUI	5	Swiss Confederation
1	SWZ	5	Swaziland, Kingdom of
1	SYR	5	Syrian Arab Republic
1	TCD	5	Chad, Republic of the
1	TCH	5	Czechoslovak Socialist Republic
1	TGK	5	Tanzania, United Republic of
1	TGO	5	Togo, Republic of
3	THA	4	Thailand, Kingdom of
3	TKL	2	Tokelau Islands [New Zealand dep.]
1	TON	4	Tonga, Kingdom of
1	TUN	5	Tunisia, Republic of
1	TUR	5	Turkey, Republic of
1	UAE	5	United Arab Emirates
1	UGA	5	Uganda, Republic of
1	UKR	3	Ukranian Soviet Socialist Republic
1	URS	65	Union of Soviet Socialist Republics
3	VTN	4	Viet-Nam, Socialist Republic of
3	WAK	5	Wake Island [U.S.A.]
1	WAL	4	Wallis and Futuna Islands [French dep.]
1	YEM	5	Yemen Arab Republic
1	YMS	5	Yemen, People's Democratic Republic of
1	YUG	10	Yugoslavia, Socialist Federal Republic of
1	ZAI	10	Zambia, Republic of

SOURCE: Compiled from Art. 11 of the Final Acts of the World Administrative Radio Conference for the Planning of the Broadcasting-Satellite Service in the Frequency Bands 11.7-12.2 GHz (in Regions 2 and 3) and 11.7-12.5 GHz (in Region 1), Geneva 1977 [hereinafter cited as Final Acts].

*ITU Region, *See* App. 24, Radio Regulations (Geneva 1976).

†ITU/IFRB Country Symbol. See Table 1, Preface, International Frequency List.

‡Each allotment consisted of a frequency channel, combined with a radio energy "beam" emanating from a point in the geostationary orbit and covering a defined elliptical ground area. The large number of allotments indicated for some nations generally resulted from the use of many individual radio beams directed toward each territorial subdivision within the nation. The geographically large nations generally sought this approach, rather than using a few beams which covered the entire nation. Thus, above the threshold level of four or five allotments, the quantities are roughly proportional to the nation's geographical area.

§Final Acts of the Broadcasting Satellite Conference (Geneva, 1977) *supra* note 1, art. 11 n. 4. These assignments can provide service to Rhodesia and the Republic of South Africa, five channels each. Because the present governments of those countries have been excluded from ITU participation, the allotment arrangement is a kind of trust on the part of the International Frequency Registration Board (IFRB). *See* ITU Administrative Council Res. 676, 25th Session, 1970; ITU Administrative Council Res. 619, 22d Session, 1967. During most of the planning at the Conference, the country symbols for Rhodesia and South Africa, RHS and AFS, were actually used. However, at the end of the Conference, the symbols were replaced by symbol IFB. See Summary Record of the Eleventh and Last Meeting of Committee 5 (Planning) 1, Doc. No. 381 (Mar. 30, 1977).